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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/633,782	08/07/2000	Gun-Hee Lee	3430-0129P	3862

7590

06/18/2003

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EXAMINER

NGUYEN, HOAN C

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/633,782

Applicant(s)

LEE ET AL.

Examiner

HOAN C. NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manakata (US6373540B1) in view of Yang et al. (US6151089A).

In regard to claims 1 and 2, Manakata teaches (Figs. 2A-2D, 3A-J, col. 7 line 42 to col. 9 line 36) a liquid crystal display device comprising:

- display panel (by turning upside down or 180° a whole liquid crystal cell, please see Respond to Arguments of Office Action [paper 12] mailed on 2/6/2003) including a lower layer 1 at the lowest portion of the display panel and an uppermost layer 2, positioned above the lowest layer at the uppermost portion of said display panel;
- first substrate (lower substrate 2) forming an uppermost layer of said display panel including
 - a) a switching element (thin film transistor 8) on the first substrate
 - b) a passivation film (interlayer insulating film 20) formed over the whole surface of the first substrate while covering the switching element;

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- c) a pixel electrode (light reflection layer 9 acting as pixel electrode) on the passivation film;
 - d) a black matrix BM formed on the passivation film and over the switching element;
 - e) a color filter (planarizing layer 14 made by coloring photoresists) formed over the pixel electrode;
 - f) a first orientation film 15 formed on the black matrix and the color filter and above the pixel electrode.
- a second substrate (upper substrate 1) aligned with the first substrate having a common electrode 6 and a second orientation film 7, the orientation film formed on the common electrode;
 - sealing the first and second substrates with a sealant; This is a well known prior art for keeping liquid crystal layer from environment.
 - a liquid crystal layer 3 interposed between the first and second substrates.

In regard to claim 12, Manakata teaches (Figs. 2A-2D, 3A-J, col. 7 line 42 to col. 9 line 36) a method of manufacturing a liquid crystal display device, which comprises an array of thin film transistors and an array of pixel electrodes including:

- forming a gate line and a gate electrode on a first substrate said first substrate forming the uppermost layer of a display panel, the gate electrode extending from the gate line;

- forming a gate insulating layer 17 on the exposed surface of the upper substrate while covering the gate line and the gate electrode;
- forming a semiconductor layer 18 over the gate electrode;
- forming a data line and source and drain electrodes 21/22, the source electrode overlapping one end portion of the semiconductor layer, the drain electrode overlapping the other end portion of the semiconductor layer, the source and drain electrodes spaced apart from each other, the source electrode extending from the data line;
- forming a passivation film 20 over the whole surface of the first substrate while covering the source and drain electrodes, the passivation film having a contact hole on the drain electrode;
- forming a pixel electrode (reflective layer 9 could act as pixel electrode) on the passivation film, the pixel electrode electrically connected with the drain electrode through the contact hole;
- forming a color filter 14 on the pixel electrode;
- forming a black matrix BM over the thin film transistor
- forming a first orientation film 15 on the color filters and the black matrices;
- forming a common electrode 6 on a second substrate;
- forming a second orientation film 7 on the common electrode;
- aligning the first substrate turned upside down with the second substrate so that the first orientation film of the first substrate is opposite to the second orientation

film of the second substrate with a gap there between to prevent degradation of the contact resulting from the mixing of dispersed light;

It is well known prior art that

- sealing the first and second substrates with a sealant; and injecting a liquid crystal between the first substrate and the second substrate.
- The common and pixel electrodes made of ITO for transparent property.

However, Munakata fails to disclose a second substrate formed adjacent a backlight device to prevent the degradation of contrast resulting from the mixing of dispersed light.

Yang et al. teach (fig. 2) a second substrate 1 formed adjacent a backlight device to prevent the degradation of contrast resulting from the mixing of dispersed light.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal display device as Munakata disclosed with a second substrate formed adjacent a backlight device for supplying light to the liquid crystal layer.

2. Claims 3-8 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manakata (US6373540B1) in view of Yang et al. (US6151089A) as applied to claims 1, 2 and 12 above, in view of Ono et al. (US5847781A).

Ono et al. teach (Figs. 3 and 7, col. 7 lines 5-16) a liquid crystal display device further comprising a light absorbing film AS formed under the semiconductor layer d0 and under the source electrode or data line DL or drain electrode SD1 for reducing

reflecting or scattering from source and drain electrodes or data lines, and therefore resulting in dark display

However, Ono et al. fail to disclose a light absorbing light obviously also is formed under the gate line or gate electrode.

For reducing reflecting or scattering from metal layers, which form source, drain and gate electrodes or data and gate lines, and therefore resulting in dark display, a light absorbing light obviously also is formed under the gate line or gate electrode.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal display device as Munakata disclosed with a first light absorbing film forming between the first substrate and the gate electrode; and a second light absorbing film forming between the semiconductor layer and the gate insulating layer for reducing reflecting or scattering from source, gate drain electrodes or data and gate lines, and therefore resulting in dark display.

3. Claims 9-11 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manakata (US6373540B1) in view of Yang et al. (US6151089A) as applied to claims 1, 2 and 12 above, in view of Ono et al. (US5847781A) as applied to claims 3 and 4 above, and in further view of Lee et al. (US6177973B1)

Lee et al teach (Fig. 1A col. 2 lines 37-45) a liquid crystal display device, wherein the common electrode made of an opaque conductive material of Aluminum or

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chromium, which is used to make light shielding or reflecting electrode. Thus, an opaque-conductive material may also be used for a reflective type liquid crystal display.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal display device as Munakata disclosed with the common electrode made of an opaque conductive material of Aluminum or chromium for light shielding or reflecting.

Response to Arguments

Applicant's arguments filed on May 6, 2003 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are follows:

A. Munakata fails to disclose or suggest forming a passivation film over the whole surface of the first substrate while covering the source and drain electrodes.

B. Remarks (page 2 at second paragraph) provides the evidence of the advantage obtained by turning a TFT upside down provided in the original specification on page 4, lines 10-18.

Examiner's responses to Applicants' ONLY arguments are follows:

A. Munakata discloses forming a passivation film (interlayer insulating film 20) over the whole surface of the first substrate (lower substrate 2) while covering the source and drain electrodes. As Fig. 2 shown, the semiconductor layer 18 is patterned in two portions acting as drain and source electrodes on which contact holes 21 and 22 are formed to electrically connecting with data line and pixel electrode 9b and a

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passivation film 20 covers these electrodes (although reference cites contact holes 21 and 22, with different names, as source and drain electrode. Based on these names, the passivation film is formed over the whole surface of the first substrate while **covering around (not above) the source and drain electrodes 21/22).**

However, as Fig. 1B shown, **contact hole 21 is formed to electrically connecting with data line 21y and contact hole 22 is formed to electrically connecting with pixel electrode 9b; therefore, the patterned semiconductor layer forms drain and source electrodes under a passivation film 20.**

Furthermore, it also well known in the art that a passivation over the whole surface of the first substrate while covering the source and drain electrodes.

B. Remarks (page 2 at second paragraph) provide ONLY the evidence of the advantage obtained by forming the black matrix on the active-matrix substrate for simplifying aligning process. This evidence has nothing to do with turning a TFT upside down provided in the specification. **The possible or reasonable advantage obtained by turning a TFT upside down is preventing light from a backlight entering the TFT for a transmissive-type LCD. However, this advantage is not disclosed in specification or claims.**

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Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (703) 306-0472. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

HOAN C. NGUYEN
Examiner
Art Unit 2871

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May 30, 2003

